

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Cancelled).

Claim 2 (Cancelled).

Claim 3 (Previously Presented): A temperature measuring method as set forth in claim 18, wherein a frequency of the radio frequency power is 40 MHz or higher.

Claim 4 (Previously Presented): A temperature measuring method as set forth in claim 18,

wherein the temperature measured portion of the susceptor has a shape recessed toward a face on which the substrate to be processed is to be placed.

Claim 5 (Previously Presented): A temperature measuring method as set forth in claim 18,

wherein the temperature measured portion of the susceptor is made of said blackbody.

Claim 6 (Cancelled).

Claim 7 (Cancelled).

Claim 8 (Previously Presented): A plasma processing apparatus as set forth in claim 19,

wherein a frequency of the radio frequency power is 40 MHz or higher.

Claim 9 (Previously Presented): A plasma processing apparatus as set forth in claim 19,

wherein the temperature measurement hole of said susceptor has a shape recessed toward a face on which the substrate to be processed is to be placed.

Claim 10 (Previously Presented): A plasma processing apparatus as set forth in claim 19, wherein the temperature measurement hole has a top portion which is made of said blackbody.

Claim 11 (Previously Presented): The plasma processing apparatus as set forth in claim 19, further comprising an insulating support member for supporting the susceptor, the insulating support member having a through hole such that an infrared ray emitted from the inside of the temperature measurement hole pass through toward the radiation thermometer through the temperature measurement opening, the through hole having a diameter slightly larger than the temperature measurement hole.

Claim 12 (Previously Presented): The plasma processing apparatus as set forth in claim 19, wherein said conductive vessel is formed of an anodized aluminum.

Claim 13 (Previously Presented): The plasma processing apparatus as set forth in claim 19, wherein said temperature measurement opening has a diameter of about 10mm.

Claims 14-17 (Cancelled).

Claim 18 (Currently Amended): A temperature measuring method of measuring a temperature of a susceptor which is disposed in a conductive vessel and on which a substrate to be processed is to be placed, the conductive vessel being set to a ground potential and having a space formed therein in which a plasma is generated by application of a radio frequency power, the method comprising:

forming an opening in a portion of the conductive vessel facing a predetermined temperature measured portion on a rear face side of the susceptor, the opening having a size not allowing diameter of 1/50 or less of a wavelength of the radio frequency power to leak to an external part; and

detecting, at an external part of the opening, an infrared ray emitted from the temperature measured portion to measure the temperature of the susceptor by a radiation thermometer,

wherein said susceptor is formed of an aluminum so that a top portion of said opening is anodized so as to act as a blackbody to the infrared ray, and

wherein said radiation thermometer closes the opening of the conductive vessel.

Claim 19 (Currently Amended): A plasma processing apparatus comprising:
a conductive vessel being set to a ground potential and having a space formed therein in which a plasma is generated by application of a radio frequency power;
a susceptor which is disposed in said conductive vessel and on which a substrate to be processed is to be placed; and
a radiation thermometer for measuring a temperature of the susceptor,
wherein the susceptor has a temperature measurement hole disposed at a predetermined portion for measuring a temperature of the susceptor on a rear surface side of said susceptor,

wherein said conductive vessel has an opening that is formed in a portion facing the predetermined temperature measured portion and that has a diameter of 1/50 or less of a wavelength of a size not allowing the radio frequency power to leak to an external part, and

wherein said radiation thermometer detects at an external part of the opening an infrared ray emitted from the temperature measured portion to measure a temperature of said susceptor,

wherein the temperature measurement hole of said susceptor has a top portion and said susceptor is formed of an aluminum so that the top portion thereof is anodized so as to act as a blackbody to the infrared ray, and

wherein said radiation thermometer closes the opening of the conductive vessel.

Claim 20 (New): A plasma processing apparatus comprising:

a conductive vessel being set to a ground potential and having a space formed therein in which a plasma is generated by application of a radio frequency power;

a susceptor which is disposed in said conductive vessel and on which a substrate to be processed is to be placed; and

a radiation thermometer for measuring a temperature of the susceptor,

wherein the susceptor has a temperature measurement hole disposed at a predetermined portion for measuring a temperature of the susceptor on a rear surface side of said susceptor,

wherein said conductive vessel has an opening that is formed in a portion facing the predetermined temperature measured portion and that has a diameter of 1/50 or less of a wavelength of the radio frequency power, and

wherein said radiation thermometer detects at an external part of the opening an infrared ray emitted from the temperature measured portion to measure a temperature of said susceptor,

wherein the temperature measurement hole of said susceptor has a top portion and a black body tape is pasted on the top portion of said temperature measurement hole, and

wherein said radiation thermometer closes the opening of the conductive vessel.